

Amendment

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In the Claims

The following claims will replace all prior versions of the claims in this application (in the unlikely event that no claims follow herein, the previously pending claims will remain):

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1. (Currently amended) A ~~plate, for use in a fuel cell assembly,~~ fuel cell assembly including at least one plate for (a) conducting current and/or (b) distributing fluid, the plate comprising a metallic substrate with a coating of an electrocatalytically-active material comprising ruthenium oxide.
 2. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim 1 in which the electrocatalytically-active material further comprises, in addition to ruthenium oxide, at least one other metal oxide.
 3. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim 1 in which the electrocatalytically-active material further comprises, in addition to ruthenium oxide, at least one metal or metal oxide from Group 8 of the Periodic Table of Elements.
 4. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim 1 in which the electroactively-active material further comprises, in addition to ruthenium oxide, at least one of PtO, Sb₂O₃, Ta₂O₅, PdO, CeO₂, Co₃O₄, TiO₂, SnO₂ and IrO₂.
 5. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim 1 in which the electroactively-active material further comprises, in addition to ruthenium oxide, TiO₂.
 6. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim 1 in which the electroactively-active material further comprises, in addition to ruthenium oxide, SnO₂.

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7. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim 1 in which the electroactively-active material further comprises, in addition to ruthenium oxide, IrO_2 .

8. (Currently amended) ~~A plate forming part of a~~ PEM, phosphoric acid or direct methanol fuel cell assembly, for (a) conducting current and/or (B) distributing fluid, the plate comprising a metallic substrate with a coating of an electrocatalytically-active material comprising a mixture of ruthenium or its an oxide thereof, and a metal or oxide of a metal selected from the group comprising Sn, Fe, Co, Ni or Os, ~~preferably Sn~~.

9. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim 1, the plate being in the form of a bipolar or separator plate for disposition between adjacent fuel cell units.

10. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim 1, the plate being in the form of an end plate and/or a current-collecting plate.

11. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim 1, the plate having a fluid inlet aperture and a fluid outlet aperture and being provided with surface features forming channels for conducting fluid flow from the inlet aperture to the outlet aperture.

12. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim 11 in which the inlet and outlet apertures are located at opposite sides of the plate and the surface features are located in the region of the plate extending between the inlet and outlet apertures.

13. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim 11 in which the surface features comprise a series of corrugations or a serpentine pattern.

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14. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim + 11, the surface features being embossed, etched, engraved, moulded, stamped, or die cast.

15. (Cancelled).

16. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim + 15 in which the substrate ~~of the plate~~ is a metal selected from Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zr, Nb, Ag, Pt, Ta, Pb, Al or alloys thereof.

17. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim + 15, the substrate of the plate being of aluminium or an alloy thereof.

18. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim + 15, the substrate of the plate being of titanium or an alloy thereof.

19. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim + 15, the substrate of the plate being of iron or an alloy thereof.

20. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim 1, wherein the plate ~~being~~ is a terminal plate.

21. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim + 11 in which the plate has a further fluid inlet aperture and a further fluid outlet aperture and is provided on its opposite face with surface features forming channels for conducting fluid flow from the further inlet aperture to the further outlet aperture.

22. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim 1 in which the plate substrate is of monolithic structure.

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23. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim 1 in which the plate substrate is of composite structure.

24. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim 1 in which the plate includes fittings for connection to an external electrical circuit to which energy generated by the stack is to be supplied.

25. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim 1 including pipework for conducting fluids to and/or from the stack.

26. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim 1 25 in which the internal surfaces of the pipework are at least in part coated with said coating.

27. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim 1 in which the plate is an intermediate separator plate operable in use to conduct current from the anode of one fuel cell unit to the cathode of the adjacent fuel cell unit and/or distribute fluid flow in the fuel cell stack.

28. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim 1 11 in which the inlet and outlet apertures are located at opposite sides of the plate.

29. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim 28 including surface features located in the region of the plate extending between the inlet and outlet apertures.

30. (Currently amended) A plate, for use in a fuel cell assembly, for (a) conducting current and/or (b) distributing fluid, the plate comprising a substrate with a coating of an electrocatalytically-active material comprising a nickel/cobalt spinel, wherein said substrate comprises at least one metal selected from Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zr, Nb, Ag, Pt, Ta, Pb, Al or alloys thereof.

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31. (Cancelled).

32. (Currently amended) ~~A plate as claimed in~~ The fuel cell assembly of Claim 31, being a PEM, phosphoric acid or direct methanol fuel cell.

33. (Cancelled).

34. (Currently amended) ~~A fuel cell assembly or stack as claimed in~~ The fuel cell assembly of Claim 33 1 in which including separator plates and end and/or current-collecting plates, and is which only the end and/or current-collecting plates of the assembly are provided with said coating.

35. (Currently amended) ~~A fuel cell assembly or stack as claimed in~~ The fuel cell assembly of Claim 33 1 in which including separator plates and end and/or current-collecting plates, and is which the end and/or current-carrying plates and only some of the separator plates are provided with said coating.

36. (Currently amended) A fuel cell ~~stack~~ assembly comprising a plurality of individual fuel cell units each comprising an anode, a cathode and ion exchange membrane disposed between the anode and the cathode, a plurality of bipolar or separator plates located between the anode of one unit and the cathode of an adjacent unit, and end and/or current-collecting plates associated with the ~~stack~~ assembly, ~~characterised in that wherein~~ at least one of the end and/or current-collecting plates and/or at least one of the bipolar or separator plates ~~is as defined in Claim 1~~ comprises a metallic substrate provided with a coating of an electrocatalytically-active material comprising ruthenium oxide or a mixture of ruthenium or oxide thereof, and a metal or oxide of a metal selected from Sn, Fe, Co, Ni or Os.

37. (Currently amended) A fuel cell ~~stack~~ assembly comprising:

- a) a plurality of fuel cell units each of which contains a proton-exchange membrane separating the cell into anolyte and catholyte chambers and provided with an anode and a cathode on opposite sides thereof;

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- b) a separator or bipolar plate disposed between adjacent cell units;
- c) end and/or current-collecting plates associated with the ~~stack~~ assembly;
- d) means for feeding hydrogen fuel to the anolyte chambers of the ~~stack~~ assembly; and
- e) means for feeding an oxygen-containing gas to the catholyte chambers of the ~~stack~~ assembly;

~~characterised in that~~ wherein at least one end and/or current-collecting plate and/or at least one separator plate ~~is as defined in Claim 1~~ or bipolar plate comprises a metallic substrate provided with a coating of an electrocatalytically-active material comprising ruthenium oxide or a mixture of ruthenium or oxide thereof, and a metal or oxide of a metal selected from Sn, Fe, Co, Ni or Os.

38. (Currently amended) ~~A The fuel cell stack as claimed in~~ assembly of Claim 36 1, being a phosphoric acid fuel cell.

39. (Cancelled).

40. (Currently amended) ~~A The fuel cell stack as claimed in~~ assembly of Claim 36 including means for cooling the interior of the ~~stack~~ assembly.

41. (Currently amended) ~~A The fuel cell stack as claimed in~~ assembly of Claim 36 in which the end and/or current-collecting plates are provided with projections for engagement with a support surface to support the remainder of the assembly ~~stack~~ in spaced relation with the surface.

42. (Currently amended) ~~A The fuel cell stack as claimed in~~ assembly of Claim 36 in which the end and/or current-collecting plates comprise the primary means for the application of compression to the ~~stack~~ assembly.

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43. (Currently amended) A The fuel cell ~~stack as claimed in~~ assembly of Claim 36 in which compression is applied to the end and/or current-collecting plates and to the remainder of the ~~stack~~ assembly by means of compression-applying plates located outboard of the end plates.

44. (Currently amended) A The fuel cell ~~as claimed in~~ assembly of Claim 36 in which the end and/or current-collecting plates are thicker than the separator plates.

45. (Currently amended) A The fuel cell ~~stack as claimed in~~ assembly of Claim 36 including humidifying means for introducing water vapour into the fuel and oxidant streams supplied to the ~~stack~~ assembly.

46. (New) A plate, for use in a fuel cell assembly, for (a) conducting current and/or (b) distributing fluid, the plate comprising a metallic substrate with a coating of an electrocatalytically-active material that comprises ruthenium oxide and an oxide selected from the group comprising TiO_2 , SnO_2 and IrO_2 , the metallic substrate being selected from aluminum, or an alloy thereof, or iron, or an alloy thereof.

47. (New) A plate as claimed in Claim 46 in which the metallic substrate comprises stainless steel.

48. (New) A plate, for use in a fuel cell assembly, (a) conducting current and/or (b) distributing fluid, the plate comprising a substrate with a coating of an electrocatalytically-active material comprising a nickel/cobalt spinel, the substrate comprising a metal selected from the group comprising Ti, Fe, Al, and alloys thereof.

49. (New) A fuel cell assembly as claimed in Claim 36 in which said metallic substrate comprises a metal selected from the group comprising aluminium or an alloy thereof; titanium or an alloy thereof; iron or an alloy thereof; and stainless steel.